

Remarks/Arguments:

Claims 1-12, 14-16 and 18-21 are pending and stand rejected.

By this Amendment, claims 1, 3-4, 6, 8-9, 11-12, 14-15, 18, and 20-21 are amended and new claims 22-23 are added.

No new matter is added by the claim amendments and new claims. Support for the claim amendments and new claims can be found throughout the original specification, and, for example, in FIG. 2.

Claim Objections

In the Office Action, at item 2, claims 1-5, 11-12, 14-16 and 18-21 are objected to because of informalities therein.

Claims 1, 11-12 and 14-15 have been amended to overcome this objection.

Reconsideration is respectfully requested.

Rejection on Claim 21 under 35 U.S.C. §112, first paragraph

In the Office Action, at item 4, claim 21 is rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claim 21 has been amended to include the recitation of "a further single capacitor for holding a reset voltage thereon, the further single capacitor being coupled between the column input and the input of the further amplifier when the single capacitor of the video circuit is in the sampling mode and being coupled between the input and output of the further amplifier when the single capacitor of the video circuit is in the readout mode."

Applicants submit the rejection is now overcome.

Reconsideration is respectfully requested.

Rejection of Claims 1-12, 14-16 and 18-21 under 35 U.S.C. §103(a)

In the Office Action, at item 6, claims 1-12, 14-16 and 18-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Borg et al. (U.S. Patent No. 6,476,864, hereafter referred to as Borg) in view of Morse et al. (U.S. Patent No. 4,786,831, hereafter referred to as Morse).

Reconsideration is respectfully requested.

Claim 1

Claim 1 is directed to an active pixel sensor array sampling system, and recites "one or more of the video or reset circuits includes: ... a single capacitor such that in a sampling mode the single capacitor is coupled between the column input and the input of the amplifier,

exclusive of any other capacitor coupled to the input of the amplifier, and in a readout mode the single capacitor is coupled between the input of the amplifier and the output of the amplifier."

Borg Reference

Borg discloses amplifiers 80 and 110. The Examiner corresponds either amplifier 80 or amplifier 110 of Borg to the amplifier with an input and an output recited in claim 1. Borg discloses that, during the first phase (e.g., the sampling mode), switches 76, 92 and 84 are closed. (See Borg at column 8, line 59 to column 9, line 6.) With switches 76, 92 and 84 closed, it is clear from FIG. 4 of Borg that capacitor 82 is connected between the input and output of the amplifier 80 and capacitor 78 is connected between the column input and input of the amplifier 80. That is, contrary to the recitation in claim 1, Borg teaches that in the sampling mode, capacitors 78 and 82 are coupled to the input of amplifier 80. Moreover, with respect to amplifier 110 of Borg the operation of the switches is similar and capacitors 108 and 112 are connected to the input of amplifier 110 during the sampling mode.

Morse reference

Morse discloses a detector reset switch 16 and capacitor reset switch 24 are closed in a first-time period so as to initially bias the detector 10 and initialize the integrating amplifier stage. In Morse, after the detector is biased (e.g., reset to an optimal potential) the detector reset switch and capacitor reset switch 24 are opened in an second time period. This places an initial $V(1)$ at the amplifier output node 22 of Morse due to switching noise associated with opening the detector and capacitor reset switches 16 and 24. (See Morse at column 3, lines 6-17.) That is, reset switch 16 is opened during the sampling mode of the Morse amplifier circuit. Because reset switch 24 is open-circuited during the sampling mode, it is clear from Fig. 3 of Morse that coupling capacitor 14 and integrating capacitor 18 are coupled to the input of amplifier stage 12. This is because, integrating capacitor 18 is coupled to the input of amplifier stage 12 via coupling capacitor 14. Thus, contrary to the recitation in claim 1, Morse teaches that in the sampling mode coupling capacitor 14 and integrating capacitor 18 are coupled to the input of the amplifier.

Accordingly, it is submitted that claim 1 patentably distinguishes over Borg in view of Morse.

Claims 6, 11 and 15

Claims 6, 11 and 15, which includes similar but not identical features to those of claim 1, are submitted to patentably distinguish over Borg in view of Morse for at least similar reasons to those of claim 1.

Claims 2-5, 7-10, 12, 14, 16 and 18-21

Claims 2-5, 7-10, 12, 14, 16 and 18-21, which include all of the limitations of claim 1, 11 or 15, are submitted to patentably distinguish of Borg in view of Morse for at least the same reasons as their respective independent claims.

New Claims 22 and 23

New claims 22 and 23, which include all of the limitations of claim 1 or claim 11, are submitted to patentably distinguish over the cited art for at least the same reasons as their respective independent claims.

New claims 22 and 23 include patentable distinctions beyond those of claim 1 or claim 11, namely "a switch connecting a single capacitor to the column input in the sample mode and disconnecting the single capacitor from the column input in the readout mode."

Consideration and allowance is respectfully requested.

Conclusion

In view of the current amendments, new claims and remarks, Applicants submit the application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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Dated: December 19, 2007